Group 1 Recommendations

1. Use guided inquiry to create a focused and safe environment for collaboration.
2. The inquiry process
   1. starts with a targeted question around student learning.
   2. Iteratively gathers and collects evidence (possibly with a protocol) through activities such as FIGs, CATS, classroom exchanges and common assessments.
   3. Results in ongoing changing practice.

We have made substantial progress. That said, our weakest link is our ability to ask research questions and develop assessments measures for data collection.

Group 2 Recommendations

1. Departmental investment in creating a curriculum which supports deeper student understanding: Faculty take control of curriculum either by re-examining course learning outcomes or using backwards design – this process is not dictated by textbook content or other external forces but by what we *really* want students to understand. Faculty must have a willingness to rethink or move away from the traditional curriculum. This process allows for deeper learning experiences in the classroom and a shift in the role of faculty from lecturer to facilitator. Students explaining their mathematical thinking becomes a powerful learning activity.

Deep understanding is not the purview of publishers. It is the first step in developing curriculum and course learning outcomes. Some instructors at EvCC have experienced this shift in professional identity while developing Math 98 and the development of the Student Attribute curriculum.

1. Proactive leadership in the (campus) community promoting math literacy: Math faculty should be actively engaged in shaping the campus cultural perception of mathematics. Specifically, faculty should advocate the fact that no one is born “bad at math” and lead a conversation that challenges the conventional wisdom regarding what math is and how it is learned.

Faculty members have gone into classrooms and have met with external departments and educational planners to describe the structural changes and the rationale for this in the math curriculum. We are still struggling with raising awareness in certain areas (nursing, for example) possibly because of cultural baggage. This can be damaging for students, especially when this is conveyed to students. We are still working on our communications with external departments.

1. *Provide interested instructors at all levels (adjuncts and FT) with time, space, and support to experiment (resulting in either success or failure) without fear of repercussion.*

We believe this is extremely important. The sale on which this is done depends on future resources.

Group 3 Recommendations

1) Now we use Formative Assessments in the classroom to frequently gain information about student understanding and we use that information to decide what to do next as teachers. Formative Assessments include, but are not limited to: common cross-course and cross-section questions, group quizzes/tests, multiple drafts of complex tasks, CATS, self-assessment.

This is a part of the Math 98 practices, and some faculty do this as a regular part of their classroom practices. The use of CATs has increased substantially in the department. Cross-course and cross-section assessments have become institutionalized in the department.

2) As the use of Formative Assessment moves from educators tinkering in isolation to a visible part of our collective practice there is a noticeable shift in the adaptive capacity of a department to help students be successful. The visibility comes through participation in structured FIGS, formal lesson study, departmental initiatives using evidence-based practices, and state-wide retreats.

We think this means to be visible (i.e. share and collaborate – collective inquiry) and here’s how we do it: we have shared examples of formative assessments in department meetings and we have collaborated to develop formative assessments. The group effects the individuals – sharing what we are doing has inspired others to do the same..

Group 4 Recommendations

1. Effective tasks were open ended, not listed with a,b,c,d to lead to the answer. Just ask the question and allow students to struggle in the practice of real problem solving. These require training, experimentation, reflection and support to create.

We think this question is talking about (bad) scaffolding but not naming it. Better scaffolded tasks are an important part of the Math 98 curriculum. These are subtle ideas that require practice and reflection and a certain amount of indoctrination for faculty new to the course. In order to actually do this in a sustained manner (i.e. creating effective tasks) requires more time and money.

2) A skilled facilitator is clear on their goals/outcomes beyond math skills, sets expectations for process and frustration in class, engages each student, guides the inquiry but does not give answers, and encourages productive struggle. Requires training, experimentation, reflection, and support.

This statement describes why #1 is not trivial.

3) To promote contextualized tasks, adjust course outcomes and assessments to encompass the demands of contextualized tasks and real life applications. These outcomes can't just be math procedures, but rather the thinking skills to employ the math skills that they've learned in the real world.

In Math 98 this is part of the curriculum.

Group 5 Recommendations

1. Reallocate classroom time to make space to shift faculty role to coach from answer-machine, encourage multiple representations and strategies, and develop students’ abilities to articulate math.

This has happened in our Math 98 class (reallocation of not only class time but assessments as well). This is working well in Math 98 mostly because of the change in curriculum. It is necessary but not sufficient for the curricular changes to happen in other classes in order for the reallocation time to happen.

1. Department-wide collaboration (such as faculty inquiry groups, exchanges and shared activity development) which enables the design of new ways to draw out student thinking, reasoning and sense making.

We have not done this as a department, but it has happened in isolation. Time is a limiting factor, and we don’t think that 100% of our faculty will engage in this. It is unclear whether “department wide” means everyone participates (rather than just a majority). This is reasonable and possible only if there is a shift in professional identity.

1. Explore and embrace research on theories of student learning with time and framework for discussion.

Important for us to do, but the main opportunities for doing this are at RPM retreats. It is done (again, in isolation) by a few faculty in our department, but no framework exists. Also, this is not sufficient for change. That said, it could be the impetus for deeper discussions.